

## **OPS Notice of Final Rule**

“Controlling Corrosion on Hazardous Liquid and Carbon Dioxide Pipelines”

Docket No. RSPA-97-2762

### **Summary of Rulemaking:**

In late 1997, the Research and Special Programs Administration (RSPA), Office of Pipeline Safety (OPS) began in inquiry by holding public meetings on the topic of how 49 CFR, Part 195 (hazardous liquid pipeline safety) corrosion control standards and the corrosion control standards in Part 192 (natural gas pipeline safety) might be improved. Two public meetings were held and the results from those were used when RSPA published a Notice of Proposed Rulemaking (NPRM) to add a new subpart H to 195 that would prescribe corrosion control standards for all new and existing steel pipelines to which Part 195 applies. Comments were solicited from interested parties. Along with numerous pipelines companies and the National Association of Corrosion Engineers (NACE), the Washington Utilities and Transportation Commission, Pipeline Safety Division (WUTC) provided comments on the proposed rule. On December 27, 2001, the RSPA published its final rule in this docket in the Federal Register. The rule became effective January 28, 2002.

The final rule establishes subpart H of 49 CFR, Part 195 that is intended to improve the clarity and effectiveness of the present standards and reduce the potential for pipeline accidents due to corrosion. The rule applies to steel, hazardous liquid and carbon dioxide pipelines. The final rule also includes standards that, while based on present Part 192, include changes that OPS believes are beneficial improvements.

### **Summary of requirements under Subpart H:**

- The final rule incorporates by reference NACE Standard RP0169-96, “Control of External Corrosion on Underground or Submerged Metallic Piping Systems” (1996).
- It requires operators to verify that supervisors maintain a thorough knowledge of the procedures for which they are responsible for ensuring compliance.
- The rule requires that, except for the bottoms of aboveground breakout tanks, all newly constructed, relocated, or replaced buried pipelines must have an external coating for corrosion control, subject to applicable dates found in §195.401(c). These include specific applicability dates for inter- and intrastate hazardous liquid pipelines and carbon dioxide lines.
- The rule requires that coating materials for external corrosion control be designed specifically to mitigate corrosion of buried pipelines, have good adhesion, be tough enough to resist damage due to handling or soil stress, and support cathodic protection.
- Operators are required to inspect the pipe coating at the time the pipe is lowered into the ditch and must repair any coating damage discovered.

- Operators are to ensure that cathodic protection be in operation not later than one year after pipeline construction is complete, it is relocated, replaced or otherwise changed.
- The rule requires pipeline segments to have electrical test leads for external corrosion control after December 27, 2004 for any segments that did not already require test leads at the time of final rule publication.
- Test leads are to be installed at intervals frequent enough to obtain electrical measurements indicating the adequacy of cathodic protection.
- Operators are required to examine any portions of pipelines for external corrosion that have been exposed (deliberately unearthed) and, if they find evidence of corrosion, they are to perform an extended investigation longitudinally and circumferentially beyond the exposed portion.
- Operators are required to conduct tests on cathodically protected pipe at least once each calendar year, except that where testing is impractical for short, separately protected sections of bare or ineffectively coated pipe at those intervals, the testing may be done once every 3 years.
- Operators are to identify before December 29, 2003, or not more than 2 years after cathodic protection is installed the circumstances in which a close interval electrical survey or comparable technology is practicable and necessary to accomplish objectives outlined in paragraph 10.1.1.3 of the NACE Standard.
- Operators are required to reevaluate unprotected (bare) pipe for areas of active corrosion once every 5 years before December 29, 2003 and once every 3 years after December 28, 2003.
- Operators are required to periodically check rectifiers and other cathodic protection devices for proper electrical performance.
- All buried pipelines are to be electrically isolated from other metallic structures, unless they are electrically interconnected and cathodically protected as a single unit.
- Operators must have a program to identify, test for, and minimize the detrimental effects of stray currents.
- Pipelines transporting corrosive hazardous liquids or carbon dioxide must be protected for internal corrosion with the use of inhibitors and operators must monitor to determine the effect of inhibitors used.
- When sections of pipe are removed, operators are required to examine the internal surface for evidence of corrosion. If internal corrosion is discovered, operators must extend their examination longitudinally and circumferentially beyond the removed section.
- Pipelines must be protected against atmospheric corrosion with suitable coatings and they must be inspected for evidence of atmospheric corrosion at least once every 3 calendar years for onshore pipe.
- Operators who find pipe so generally corroded that the remaining wall thickness is less than that required for the maximum operating pressure of the pipe must replace the pipe, repair the pipe, or reduce the maximum operating pressure commensurate with the strength of the pipe as calculated using procedures specified in ASME B31G, "Manual for Determining the Remaining Strength of Corroded Pipelines."

- Finally, operators are required to maintain records or maps that show the location of cathodically protected pipe and cathodic protection facilities installed after January 28, 2002. Operators must also maintain records of analyses, checks, inspections, investigations, surveys and tests required by this subpart for at least 5 years or, in some circumstances, for the life of the pipeline.

**Comments submitted to OPS:**

The WUTC submitted a variety of comments in response to the NPRM.

1. The WUTC raised concern about the length of time after a pipeline construction project was complete and when cathodic protection was required. In some circumstances sections of pipe could be installed for as much as two years before coming under cathodic protection.
2. The WUTC was concerned about the vagueness of the requirement for installation of test leads on pipelines. We were concerned that inspectors and operators could disagree over whether electrical test readings were sufficient to determine adequacy of cathodic protection.
3. The WUTC suggested that OPS include additional requirements beyond just visual inspection of coatings when pipe segments are exposed.
4. The WUTC expressed concern about special conditions such as elevated temperatures, disbonded coatings, thermal insulating coatings, bacterial attack, and unusual contaminants causing cathodic protection to be ineffective. We suggested that the rules address such special conditions.
5. The WUTC stated it was concerned about lack of specificity regarding electrical tests that measure polarizing decay under the 100 milivolt criteria for adequate cathodic protection. We suggested a specific time limit of 48 hours for this measurement.
6. Finally, the WUTC opposed the use of the net protective current criterion on bare or ineffectively coated pipelines. We suggested perhaps limiting the applicability of net protective current to pipelines constructed before Part 195 went into effect.

**RSPA response to comments:**

1. In response to the comments submitted by the WUTC, OPS stated that they believed that one year after construction of new pipelines was acceptable as a generally applicable time limit considering that soil conditions may need time to stabilize in order to support cathodic protection.
2. OPS responded that Section 4.5 of NACE Standard RP0169-96, which lists many customary test lead locations, may be used as a guide to comply with the requirement of determining adequacy of cathodic protection by electrical survey.
3. OPS opined that although the final rules do not specifically require pipe coating surveys in addition to visual surveys, operators must conduct electrical tests periodically to determine the adequacy of corrosion control on buried pipelines. Based on this, OPS decided that the need to mandate the use of coating surveys in

addition to visual inspections and these periodic electrical tests was not evident from their review of the regulations.

4. As to consideration of special conditions, OPS stated that if an operator were to learn through in-line inspection or other means that because of a special condition external corrosion was not being successfully controlled, they would be required to take corrective action. Operators could do this through remedying the special condition or adjusting the cathodic protection system to assure adequate protection in the area of the special condition.
5. OPS responded to the comment on limiting the length of time that cathodic protection current should be allowed to be shut off to conduct test of the polarizing decay by noting that, in their experience decay tests have not posed a serious problem so as to warrant establishing a time limit.
6. Finally, OPS stated that because all pipelines subject to Part 195 construction standards must be effectively coated, the net protective current criterion will mostly be used for older pipelines constructed before those standards took effect. OPS observed that in order to coat all bare or ineffectively coated buried pipelines in order to facilitate cathodic protection would be a costly endeavor and there is the possibility that raising or moving such pipe sections to coat them could induce new risk factors not present on the existing pipelines.